Proposal for Experiment to Determine the Minimal and Maximal Mass in a Variable Mass Regime for Photons

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Introduction

Starting from the logical assumption that photons have non-zero mass and that this mass is variable (ibid.) and furthermore operating from the assumption that this mass is lowest in high-energy photons and highest in low-energy photons, we might begin to design an experiment which would enable us to infer the mass of photons at disparate energy levels in order to both prove that they have mass and to quantify that mass.

Abstract

A free electron accelerator, sometimes referred to as a free electron LASER, may be used in conjunction with other equipment for measuring the mass of electrons in order to aid in experimental inference of the mass of photons. As the mass of electrons has always been assumed to be constant, experiments have not been performed to see if the mass of an electron might change under certain extenuating conditions. Re-measurement of the mass of a trio of electrons shortly after they achieve what is known as an SASE event in order to measure the amount of mass lost by three electrons in this process can inform us of the mass of the photon generated through the event, even if the mass of photons cannot be measured directly. Importantly, the mass of the electrons must, in this case, be measured prior to any re-integration with an atomic nucleus in order to prevent their mass restoration resulting from interaction with a Higgs Field.

The minimum number of electrons required in order to bring about a self-amplified spontaneous emission event is three with the most basic configuration being a single electron moving through two others configured like goal posts on either side. If the central electron is made to move more quickly than the two on the sides, SASE can occur. By controlling the number of electrons involved and limiting it to the theoretical minimum (not how FELs are ordinarily used,) one can ensure that if a photon is created, the mass transferred to the photon comes only from three electrons and no other source (this must be done in a vacuum.) A light detector would be used to determine if a photon was created and a mechanism for measuring the mass of the three electrons would need to measure the mass of all three electrons prior to their interaction with the Higgs Field of any atoms.

Provided that these conditions can be met, the deficit of mass in the three electrons used to prompt the SASE event can be used to infer the mass of the photon generated. From there, a map can be created of the masses of photons of varying energy levels by purposefully creating photons of varying energy levels

through this process and repeating the mass-measurement process until a comprehensive map is created.

Conclusion

As has been laid out in previous publications, provided that electron-electron reflection events drive photon creation and that accelerated axis spin is a key feature of these reflection events, the vast majority of the mass of electrons is shed during these events but by no means is all mass shed. High-energy photon generation entails a greater conversion of angular momentum into spin momentum and therefore could be predicted to result in a greater degree of mass shedding. We can further infer that high-energy photons should be expected to have lower mass than low-energy electrons. This lower mass, furthermore, explains why high-energy photons are able to alternate their direction of phase with greater frequency than low-energy photons, which do not turn on a dime, as it were.

Experimental verification of this theory using this method would forever alter our understanding physics and electrodynamics, specifically.